A PROSPECTIVE STUDY OF FUNCTIONAL OUTCOME OF TIBIAL METAPHYSEAL FRACTURES TREATED WITH INTRAMEDULLARY NAILING WITH BLOCKING SCREWS(POLLER SCREWS)

ABSTRACT

Introduction: Metaphyseal fractures of tibia are difficult to treat. There are various treatment options like conservative management, External fixation, Plating and Intramedullary nailing. Intramedullary nailing has been the gold standard treatment for tibial diaphyseal fractures. Recently intramedullary nailing has been extended to fractures of metaphysis also. But intramedullary nailing of Metaphyseal fractures has been associated with increased risk of mal-alignment both in coronal and sagittal planes. Various supplementary techniques like use of blocking(Poller) screws, lateral entry point, unicortical plating of tibia, fibular plating and use of a more proximal bend in the nail have been used to prevent malalignment. We have chosen Poller screws to correct mal alignment in our study.

Aim: To assess the clinical and functional outcome of Metaphyseal tibial fractures treated with Intramedullary nailing supplemented with blocking screws.

Materials and Methods: This is a prospective study of 20 cases of metaphyseal tibial fractures treated with Intramedullary nailing supplemented with Blocking(Poller) screws. This study was conducted at Institute of Orthopaedics and Traumatology, Coimbatore during the period between October 2016 and September 2018. It included patients with displaced fractures of both proximal and distal tibial metaphysis. Only closed fractures and Grade I Open fractures were included.

Results: The results analysed showed that all fractures united in a mean period of 14.9 weeks(95%LCL 13.3 weeks and 95% UCL 16.4%). Karlstrom-Olerud score was excellent in 3 patients(15%), good in 12 patients(60%), satisfactory in 4 patients(20%) and Fair in 1 patient(5%). One patient had delayed wound healing which subsided with antibiotic treatment in 3 weeks. One patient had delayed union due to increased comminution. No complications like screw breakage or nail breakage was encountered.

Conclusion: Based on the above results we conclude that the poller screws when supplemented in the surgical management of tibial metaphyseal fractures treated with intra medullary interlocking nailing 1) Is a more effective technique in achieving fracture alignment and preventing malalignment with poller screw acting as a reduction tool, 2)Functions to maintain the fracture alignment until union is achieved, 3)Improves the bone – implant construct stability, with the blocking screws reducing the medullary canal diameter functionally and directing the nail centrally.